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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/565,241

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Walter Kuhn

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03/09/2010

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EXAMINER

GRESO, AARON J

ART UNIT

PAPER NUMBER

1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/565,241	Applicant(s) KUHN ET AL.	
	Examiner AARON GRESO	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,7 and 9-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,7 and 9-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Any rejections and/or objections made in the previous Office Action and not repeated below, are hereby withdrawn.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The same grounds of rejection set forth below have been previously presented in a prior Office Action.

Claim 10 has been amended to remediate a previous 112, 2nd paragraph rejection. The Claim's scope has not changed.

No other Claims have been amended.

A reply to the Applicants' arguments is presented after addressing the Claims.

Claim Rejections - 35 USC § 102

Claims 1-2, 4-5, 7, 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by *Grob et al. (Helvetica Chimica Acta Vol 47 no. 6 1964 pp. 1385-1401; page 1399, 2nd paragraph and English translation)*.

The reference indicates (*page 1399, 2nd paragraph and English translation*) a composition comprising cis-3,3,5-trimethylcyclohexyl formate {C₁₀ H₁₈ O₂}. The composition comprises 85.4% cis-3,3,5-trimethylcyclohexyl formate {the percentage taken as weight percent as the ingredients for the reaction comprise mass amounts}.

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As the crude yield {88.3%} is greater than the refined yield cis percentage {85.4%}, the cis percentage is taken to represent the amount of cis material comprised within the 88.3% of 3,3,5-trimethylcyclohexyl formate material recovered; the other amount being trans that would comprise 88.3-85.4 or 2.9 percent of yield. When normalized to 100 percent, the composition comprises $100 \times 85.4/88.3$ and $100 \times 2.9/88.3$ or 96.7 percent cis and 3.3 percent trans when considering the percentage relationship of the two chemical versions. These amounts being within the amounts claimed. The cis and trans amounts being consistent with amounts obtained for similar cis and trans compounds known in the art {see informational reference: *De Haan et al. US 4136066, Col 5 Example 3*} and the amounts obtainable by cis and trans purification techniques {see informational reference: *Caccamese et al., page 546, Col 1, 1st paragraph, Chromatographia Vol 12 no 8 pp 545-547*}.

Further, one of ordinary skill in the art would expect that the cis fragrance materials would inherently comprise trans material in some amount because of the difficulty in separating cis material from trans material as they have similar boiling points that prevent ease of separation {see informational references: cis 335Trimethylcycloheanol CHEMEXPER and *Sato et al. Applied Catalysis B Environmental vol 49 2004 pp181-185, col 2 p 181*}.

As to Claim 4:

The other ingredients in the mixtures indicated above comprise 3,3,5-trimethylcyclohexyl alcohol and formic acid; formic acid comprising an irritating pungent odor producing a burning sensation {see informational reference: Formic Acid ILO

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icsc0485, page 1 "Exposure" and page 2, "Important Data"}. As the reaction consumes formic acid, while increasing the cyclohexyl formate content, the composition scent would be expected to become less sour or acidic and would then inherently comprise a scent provided by the chemicals produced. The scent would be expected to be fresher and, or, fruitier than a pungent odor producing a burning sensation.

As to Claim 5:

In addition, because formic acid comprises a pungent odor, and because the reference indicates an excess of formic acid (*Helvetica Chimica Acta Vol 47 no. 6 1964 pp. 1385-1401; page 1399, 2nd paragraph and English translation*), the composition at the end of the reaction sequence would be expected to also comprise a fragrant, pungent odor element.

As to Claims 7 and 9-11:

The reaction that changes the 3,3,5-trimethylcyclohexyl alcohol and formic acid into the formate provides a method to add cis and trans 3,3,5-trimethylcyclohexyl formate to a composition with formic acid. As the reaction sequence reduces the initial formic acid material present, the composition's would be expected to impart, modify and/or intensify a fresh and/or fruity scent note; it would be expected that doing so would indicate that a sensorily effective amount of reacting 3,3,5-trimethylcyclohexyl alcohol and formic acid would be reduced while adding, *in situ*, the cis and trans 3,3,5-trimethylcyclohexyl formates. As the cis and trans 3,3,5-trimethylcyclohexyl formats have inherent odor properties, these properties would also be expected to comprise the fragrance notes indicated by the Applicants.

The reference discloses or inherently discloses all Claimed limitations above.

Claim Rejections - 35 USC § 103

Claims 1-2, 4-5, 7, 9-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rohde et al. (WO 01/43784)* in view of *Emura et al. (US 5856590)*.

{Emura et al and Rohde et al. are considered analogous arts because the materials for each reference entail the application of cyclohexanol derivatives that are applied towards fragrance use}.

Rohde et al. (Page 4 Lines 10-31 and Page 5 Lines 1-25) teach a genus of compounds that include chemicals of the instant Claims 1-3, 5-8, 7-10 and 19-23. When the genus includes R⁴ and R⁹ (when R⁹ is substituted for R³, thus allowing R¹⁰ to be attached to R⁹ as a methyl group) where together R⁴ and R⁹ represent a methylene bridge that closes a hexyl ring; while allowing for R¹⁰ to be attached to R⁹ as a methyl group in a 5-position on the hexyl ring; when R⁶ and R⁷ are methyl groups on the 3 position on the hexyl ring; and when R¹ (which can be an alkyl radical containing from 1-4 carbon atoms and can include a double bond) comprises 2 carbons in a chain with the last carbon containing attached to 3 hydrogens; then 3,3,5-Trimethylcyclohexy propionate is envisioned. This chemical is added to enhance fragrances (*Page 39 Example 13*) such that the 3,3,5-Trimethylcyclohexy propionate is present in a perfume oil with 3.75 percent of the total fragrance composition being 3,3,5-Trimethylcyclohexy ester.

The demonstration for a genus chemical by the reference would be expected to apply to other chemicals in the genus; substitution of one genus chemical for another in the same application being obvious. Case law holds that the mere substitution of an equivalent (something equal in value or meaning, as taught by analogous prior art) is not an act of invention; where equivalency is known to the prior art, the substitution of one equivalent for another is not patentable. See *In re Ruff* 118 USPQ 343 (CCPA 1958). Other chemicals in the genus, besides propionate {specifically for Claim 13} indicated above, are: the 3,3,5-Trimethylcyclohexy acetate {specifically for Claim 12}, isobutyrate {specifically for Claim 14}, butyrate {specifically for Claim 15}, tiglate {specifically for Claim 16}, crotonate {specifically for Claim 17}, and 3-methyl-2-butenate {specifically for Claim 18}, that are indicated in Claim 1.

Further as to Claims 1-2, 4-5, 7-18:

Although *Rohde et al.* (Page 4 Lines 10-31 and Page 5 Lines 1-25) does not impose the requirement that the ester be configured either as cis or trans, "S" or "R", nor require any mixture combination or chemical variation; it would be obvious to use any configuration of 3,3,5-Trimethylcyclohexylesters to mix with other fragrance materials as taught by *Rohde et al.*

Yet *Rohde et al.* does not further accentuate the requirement that a ratio of 80 percent or more, to 20 percent or less of respective cis to trans materials for a given composition.

On the other hand, *Emura et al.* (col 1 lines 17-24 and lines 65-67 and col 11, Table 1 col 11 and col 2 lines 22-26) teach of using high cis to trans materials, comprising 95% cis to 5% trans {by weight} for analogous perfuming materials that are preferred for perfuming applications in amounts equal to or greater than 80% relative to the 20% trans. This suggestion by *Emura et al.* would be expected to be readily verifiable by one of ordinary skill in the art when comparing analogous cis and trans 3,3,5-cyclohexanol based material. This is taken to indicate that substitution for an unspecified amount of an analogous cis or trans material comprised in a *Rohde et al.* genus composition; with a cis amount of 80%, or more, to trans amounts of a given genus chemical, would preferentially modify a composition taught by *Rohde et al.*

It is also the Examiner's position that 1) adjusting or varying the amounts of fragrances, with inherent olfactory notes or properties that are obviously detectable to one of ordinary skill in the art, to arrive at 2) desired fragrance types or scents are result effective variables because changing them will clearly affect the type of product obtained. See MPEP § 2144.05 (B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In view of the Examiner's arguments above, it would have been obvious to one of ordinary skill in the art to utilize appropriate blending optimization skills; with the aid of the suggested range taught by *Emura et al.* regarding analogous chemicals and applications; when determining appropriate amounts of various perfumes materials with

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similar structures and applications; including fragrance mixtures that can be of either cis or trans variations of chemicals, or mixtures thereof; including those possessing the compositional note preferences within the scope of the present claims, according to the Genus application teachings of *Rhode et al.*

In accord with case law cited above, it would have been obvious at the time of the invention for one of ordinary skill in the art to have employed the suggestions of *Emura et al.*, teaching that the range of cis to trans material is preferred to be higher in cis for analogous chemicals and applications to arrive at successful compositions, along with the successful compositions taught by the prior art of *Rohde et al.* comprising the materials of the Applicants, and to have improved the olfactory effect of a composition by adding a greater amount of a cis isomer relative to a trans isomer, with reasonable expectation of success.

Further, as to Claim 11:

Claim 11 is rejected under 35 U.S.C. 103 as obvious in accord with MPEP

2144.09 regarding Homology and Isomerism which states:

“Compounds which are position isomers (compounds having the same radicals in physically different positions on the same nucleus) or homologs (compounds differing regularly by the successive addition of the same chemical group, e.g., by -CH₂- groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties”.

When considering 3,3,5-trimethylcyclohexy formates, the 3,3,5-Trimethylcyclohexy acetates, residing within the Rohde et al. genus, have a methyl group that is a homolog with the formates as well as with other chemicals comprising additional R¹ methyl groups for propionate and butyrate materials. As the reference indicates that R¹ represents a trend of materials from 1-4, the reference teaches a trend

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being extendable towards either 5 or zero methyl groups; this would suggest an obvious extension to include pentyl or formal groupings. Each zero or 5 carbon R¹ chemical would be expected to have a fragrant note; this would apply towards 3,3,5-trimethylcyclohexy formates.

In accord with case law cited above, it would have been obvious at the time of the invention for one of ordinary skill in the art to have employed the suggestions of *Emura et al.*, teaching that the range of cis to trans material is preferred to be higher in cis for analogous chemicals and applications to arrive at successful composition, along with the successful compositions taught by *Rohde et al.* comprising the materials of the Applicants, and to have further applied the teachings towards cis and trans 3,3,5-trimethylcyclohexy formate homolog chemicals, expected to possess fragrance properties, and to have improved the olfactory effect of a composition by adding a greater amount of a cis isomer relative to a trans isomer, with reasonable expectation of success.

Response to Arguments

Applicant's arguments filed 04 January 2010 have been fully considered but they are not persuasive.

In regard to 102(b) rejections employing the prior art of *Grob et al.* {pages 5-6 of arguments}:

Applicant argues that the separation of cis and trans isomers can not be accomplished according to the disclosure of the prior art {page 6}.

As the separation of cis and trans isomers is not required; it is the Examiner's position that both would be present.

In accord with the Applicants' argument, the same is taken to apply towards the cis starting material in that it would not be expected to be pure and a trans starting isomer would be expected to be present due to its difficulty in separating from cis as the difference between the cis 3,3,5-cyclohexanol and the trans 3,3,5-cyclohexanol is also about 2°C {see informational references: cis 335Trimethylcyclohexanol CHEMEXPER and Sato et al. Applied Catalysis B Environmental vol 49 2004 pp181-185, col 2 p 181}. In addition, *Grob et al.* does not further indicate that the starting cis material is free from present trans material or that the starting trans material is free from the cis material {see full translation provided to support the Examiners position}; this would be consistent with the Applicants' argument that cis and trans material would be expected to be inherently present together due to the difficulty in their separation as their boiling points are very close.

In regard to 103(a) rejections employing the prior art of *Rhode et al.* and *Emura et al.* {page 7}:

Applicant argues that prior art does not teach or suggest that at least a ratio comprising at least 80% to at most 20% cis to trans 3,3,5-trimethylcyclohexyl esters be required for compositions comprising the esters.

Applicant further argues that the suggestion by *Emura et al.*, regarding cis isomers having better fragrance qualities than trans isomers and are preferred for

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perfuming applications in amounts of 95 cis to 5% trans (by weight), is insufficient motivation to comprise more cis than trans material in a cis/trans chemical mixture, with 80% or more being the amount of the cis component, employed for perfuming applications and that hindsight is used by the Examiner.

In response to applicant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this case, the guidance of *Emura et al.*, would have been expected to provide a suggestion towards where to start when either combining ingredients or for determining an appropriate ratio amount for cis and trans materials.

The rejections stand.

Examiner Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON GRESO whose telephone number is (571)270-7337. The examiner can normally be reached on M-F 0730-1700.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on 571 272 1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Milton I. Cano/
Supervisory Patent Examiner, Art Unit 1796

/AJG/